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(56) Documents Cited

GB 2243822 A GB 1416069 A GB 0870004 A
US 5322234 A US 4383656 A

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(54) Abstract Title

A device for retaining in a dispenser a core around which a web is wound.

(57) A device 18 for retaining in a dispenser a core 17 around which a web is wound comprises an anchor portion 22 received in one end portion of the core and a projecting portion 19 for engagement with the retaining means of a dispenser, the projecting portion being retained in the anchor portion by at least one arm member 23 which is movable so as to vary the distance the projecting portion extends. The anchor and projecting portions may both be generally cylindrical with the projecting portion being located generally axially within the anchor portion and the arm member 23b connecting the two portions at a location remote from the dispenser mounting fitting. There may be a pair of diametrically opposed arm members, each connected near to the outer end of the anchor portion and near to the longitudinal centre of the projecting portion. Also claimed is a roll of material comprising a core around which a web is wound comprising at least one retaining device as described above and a dispenser (figures 1 and 2, not shown) for web material comprising a closable cover and means to mate with, and allow rotation of, such a roll. The core may comprise two separate axially-spaced portions, the web being wound about each. In use, the retaining device may be used in a dispenser suitable for such materials as plastics material, metal foil, cloth or paper and such products as tissue and toilet paper, clingfilm and aluminium foil. The retaining device may be fabricated from a plastics material such as polyethylene, low-density polyethylene or polypropylene by methods such as moulding or casting.

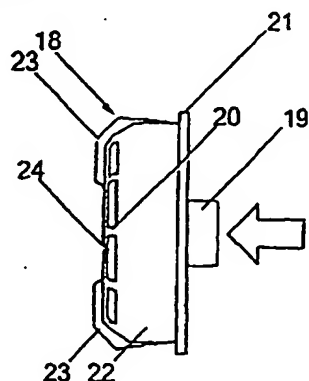
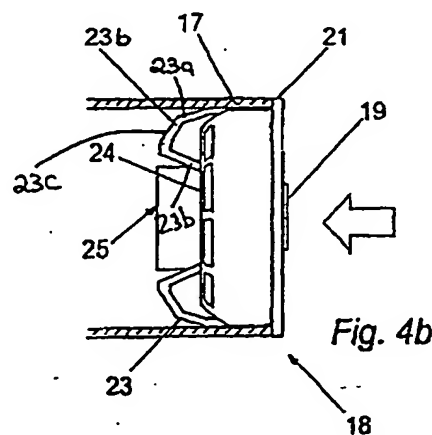
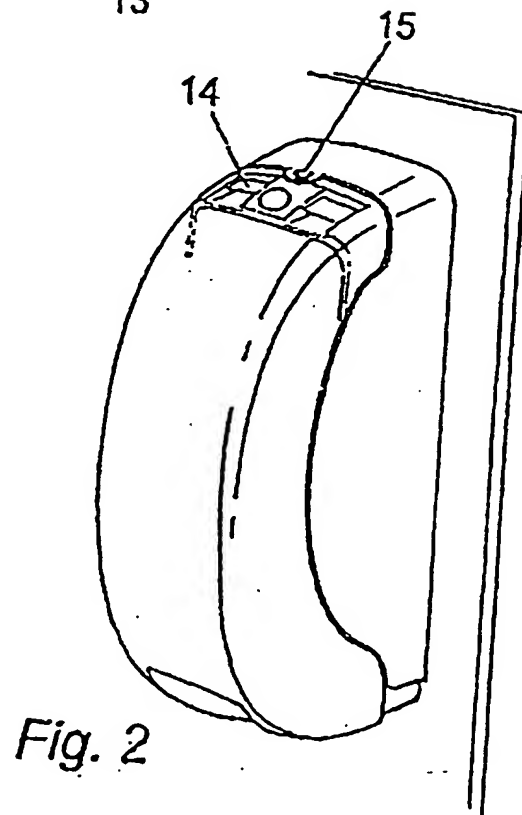
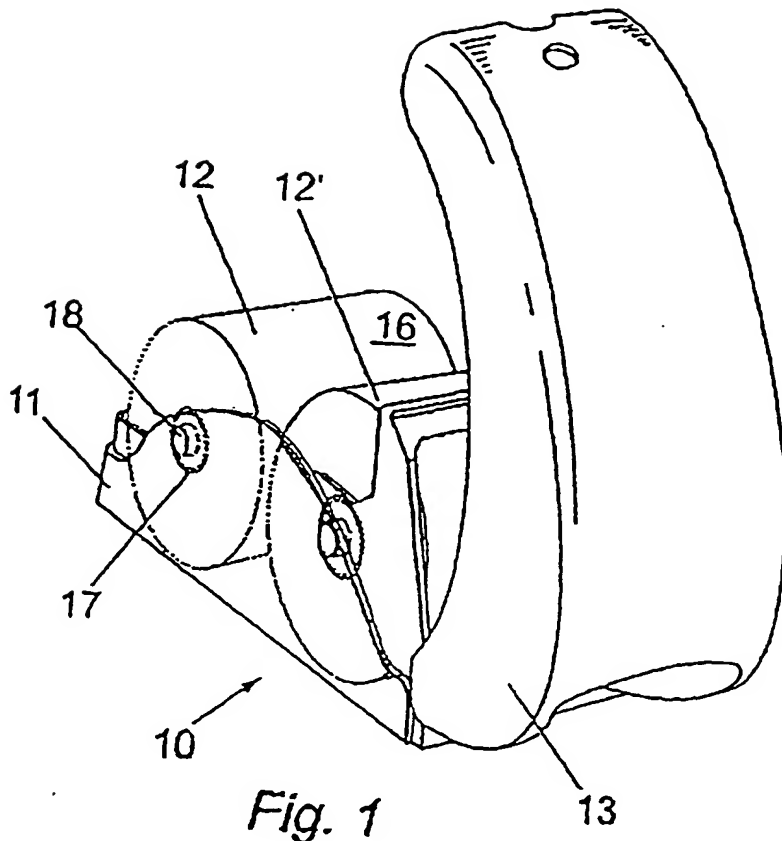


Fig. 4a





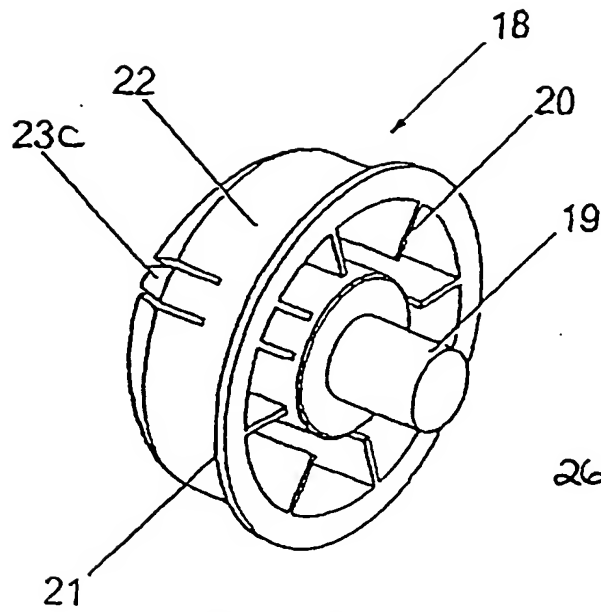


Fig. 3a

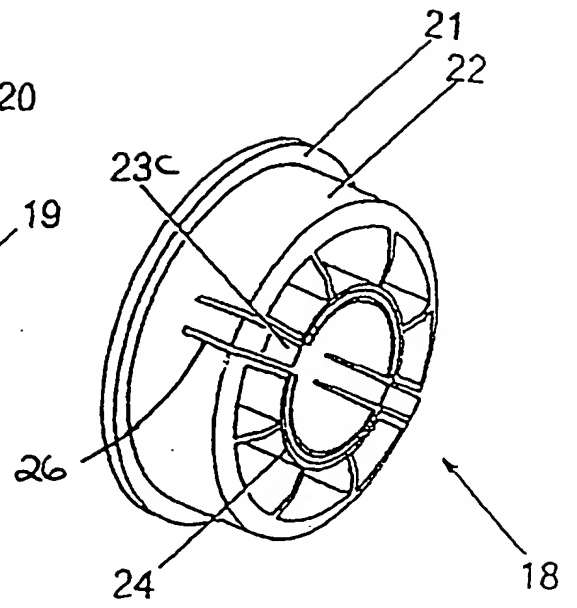


Fig. 3b

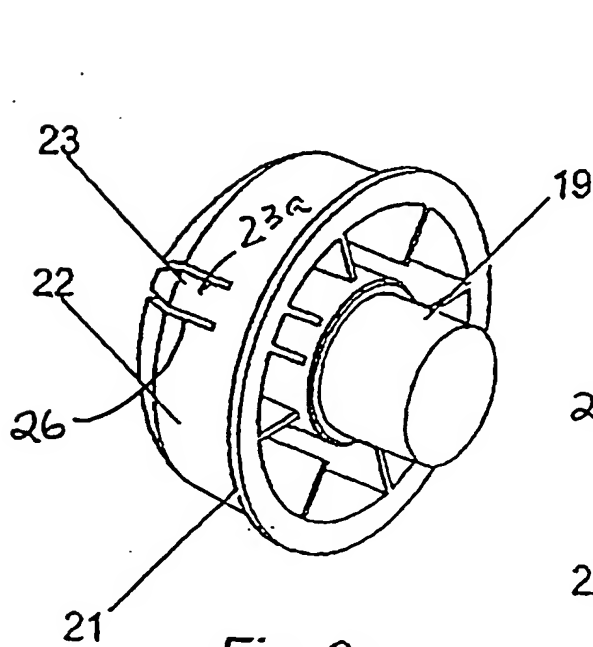


Fig. 3c

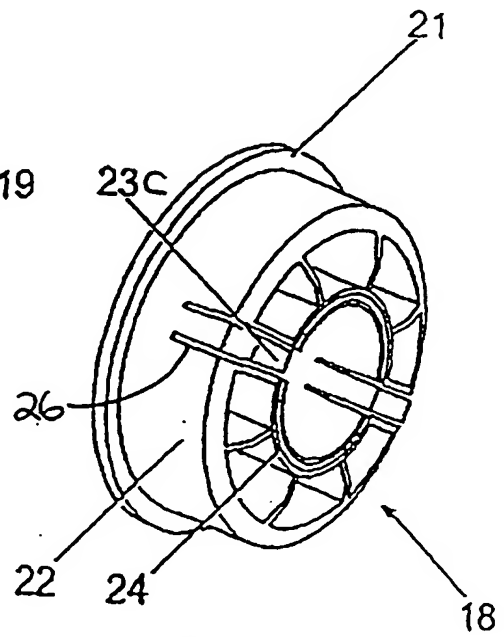


Fig. 3d

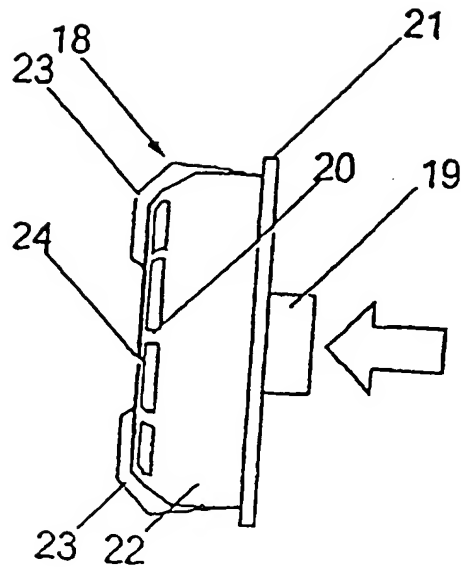


Fig. 4a

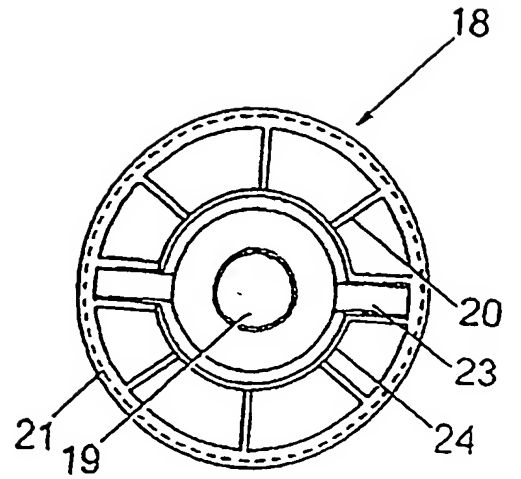


Fig. 5

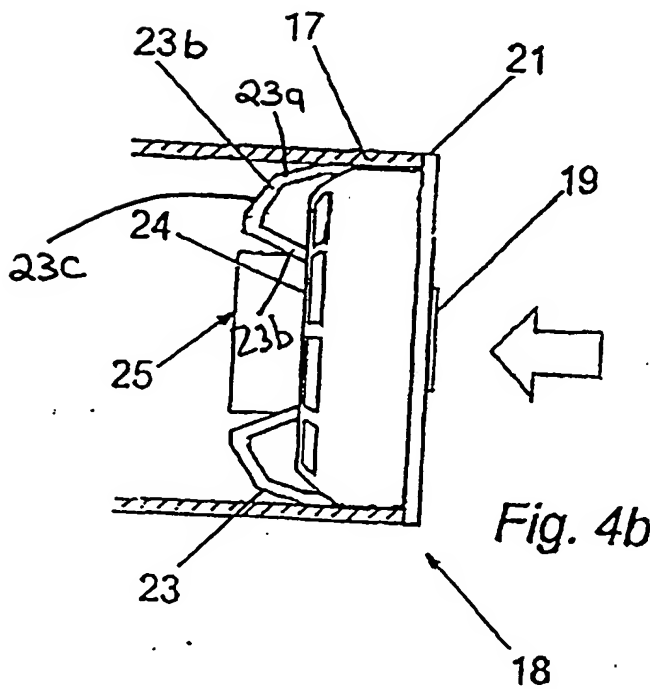


Fig. 4b

DEVICE FOR RETAINING ROLLS IN
A DISPENSER THEREFOR

The present invention relates to a retaining device for holding rolls of material within dispensers. In this description, we call the retaining device a bung.

Dispensers adapted to contain a roll of material and to dispense the material therefrom by allowing rotation of the roll of material about its longitudinal axis are well known. Such dispensers are suitable for plastics materials, metal foil, cloth or paper and are used in applications including the dispensation of tissue paper, toilet paper, clingfilm and aluminium foil, and the like.

Generally, the roll comprises a core (usually a tube) of cardboard, fibreboard or plastics around which the material is wound. Once all of the material has been dispensed, that is unwound from the core, the core is removed from the dispenser and a replacement roll of material inserted.

In some situations, such as in the workplace or in public toilet facilities, replacement of the roll of material is restricted to authorised personnel to reduce the potential for theft. However, since the status of the roll of material is checked only at relatively intermittent intervals often a roll of material may be totally consumed, but not replaced, for a considerable period of time. The absence of material from the dispenser can cause significant inconvenience to a potential user. If the roll of material is checked and

found only to contain a very small amount of material, a decision needs to be taken whether to leave the roll to be fully consumed (in the knowledge that the material is likely to run out long before the next scheduled check of the dispenser) or whether to replace the incompletely consumed roll of material, thus wasting the remaining amount of material held on the roll. The latter approach is generally adopted, but this leads to considerable waste and increased expense over time.

To circumvent this difficulty, dispensers containing multiple rolls of material have been designed. The rolls have a split core so that replacement of the rolls of material becomes semi-automatic. Usually two short tubes are placed end-to-end and the material is wound around both (the combined length of the two tubes being approximately equal to the width of the material). The multiple layers of material maintain the two portions of the core in position, but as soon as the material is totally consumed, the two portions of the core become separable and will be removable from the dispenser without requiring full access to the interior of the dispenser. Generally, the material will be dispensed downwardly so that the exposed core portions will simply drop out of the dispenser under gravity. A replacement roll of material, already located in the dispenser, will then drop into place. This type of dispenser is of particular utility for dispensing toilet paper. A further modification is the presence of plastic bungs at each end of the core to facilitate the downward movement of the replacement roll of material.

Whilst the above-described system overcomes the drawbacks of incompletely used rolls of material, it is essential that the roll of material fits inside the dispenser correctly. The

width of the roll of material, including the bungs at each end of the core, must be wide enough to prevent the spare roll of material pressing downwardly on the roll being used, and adversely affecting the ease of rotation. The width of the roll of material must also be selected so that as soon as the lower roll is used up and the core portions fall out of the dispenser, the replacement roll immediately drops into place. This requirement to use replacement rolls of only the correct width for a particular dispenser can lead to difficulty in sourcing the correct refill.

It is one object of the invention to provide retaining device for use with rolls which reduces and ideally eliminates the problems just discussed.

In one aspect the invention provides a retaining device to hold a roll of dispensable material in a dispenser therefor, the roll comprising a core about which the material is wound, the device comprising an anchor portion shaped for reception in the end portion of the core and a projection portion for engagement with roll retaining means of the dispenser, wherein the projection portion is connected to the anchor portion by at least one arm member which is movable to vary the distance the projection portion extends, in use, beyond the end of the core.

Preferably, the anchor portion and the projection portion are generally cylindrical bodies and the projection portion is located generally axially within the anchor portion and the arm member connects the two portions at a location remote from a dispenser mounting fitting.

A further aspect of the invention also provides a roll of material comprising a core about which the material is wound, the core having at least one retaining device as described above inserted therein. The core may comprise two separate axially spaced portions, the material being wound about each. Each of those two separate portions may have a retaining device as described above inserted therein. The two retaining devices need not be identical.

The invention also provides a dispenser for material comprising a closable cover and means to retain and allow rotation of a roll of material, the means comprising a portion which, in use, is arranged to engage with a retaining device as previously described so as to facilitate the retention and rotation of the roll into which the retaining device is inserted.

The roll of material may be plastics, metal foil, cloth or paper or the like. The present invention is particularly suitable for dispensers where high consumption of the material can occur, for example for hand drying or for toilet paper.

In order that the invention may be well understood it will now be further described with reference to the drawings in which:

Figure 1 is a perspective view of one dispenser in the open position containing rolls of material held in position by the bungs of the present invention;

Figure 2 shows the dispenser of Figure 1 mounted on a wall ready for use;

Figures 3a, 3b, 3c and 3d are perspective views of retaining devices of the invention viewed from the front (a, c) and rear (b, d);

Figure 4a is a side view of the retaining device of Figure 3b before insertion into a core;

Figure 4b is a side view of the retaining device of Figure 3b received into a core, and

Figure 5 shows a front view of the retaining device of Figure 3a and Figure 4a.

As illustrated in Figure 1, a dispenser 10 contains two rolls of material 12 and 12'. The dispenser 10 has a rear portion 11 to be mounted on a support e.g. a vertical wall (see Figure 2). The dispenser 10 has a lid 13 (shown in the open position in Figure 2) which is pivotally mounted at the bottom portion of base 11. In use the lid 13 rotates upwardly and clips into engagement with the closing means 14 (see Figure 2) and may optionally be locked in a closed position by a lock 15 (see Figure 2). The dispenser 10 is provided with mounting means to ensure retention and alignment of the rolls 12, 12' therein. Such means may comprise a slot which may be engaged by a projection or, for example, a ledge behind which the rolls 12, 12' are located to limit motion thereof. Other means

as are well established in the roll dispensing arts may be used to locate and retain rolls 12, 12' within the dispenser 10.

Lower roll 12' is in the dispensing position at the lower portion of dispenser 10. The edge of the material is fed downwardly between base 11 and lid 13 and is used as required. Obviously, upon dispensing of material the roll 12' is rotated so as to leave the free end of material depending from the dispenser. The material 16 forming rolls 12, 12' is wound around a core 17 which is usually formed from plastic, cardboard or fibreboard material. A retaining device or bung 18 of the invention is located at each end of the core 17. One bung is slightly different from the other i.e. the bungs are polarised to complement the fittings in the dispenser.

Each bung 18 has a generally cylindrical body anchor portion 22 dimensioned to be a snug fit within the end portion of a core 17. The body has a lip 21 at one end to abut the edge of the core. The body contains an internal tubular projection 19 which is joined thereto by two diametrically opposed arms 23. At one end each arm 23 is connected to the body portion 22 near the lip 21. At the other end the arm 23 is connected to the projection portion 19 about half way along that portion 19. Each arm 23 is generally U-shaped as seen in the axial direction of the device with the bight 23c remote from the lip 21 and has several flat portions 23a, 23b as can clearly be seen in Figure 4. Each arm 23 is formed so that there is a clearance 26 on each side. Internal fins or ribs 20 extend radially inwardly from the cylindrical portion 22 inwardly towards an arcuate wall 24, best seen in Figures 3b and 3d, 4a and 4b and which extends partly around the projection 19. The ribs are in two sets, with the arms 23 in between.

Each bung 18 is made of a plastics material which will make the arms 23 flexible.

Suitable materials are polyethylene, low-density polyethylene, polypropylene, Nylon ^(R-TM) ✓ and other well known plastics materials and the bungs 18 may be made by moulding, casting or other methods well known in the plastics-items fabrication arts.

The outer or front end of the projection 19 defines a boss to engage with the mounting means present within dispenser 10 and enable the upper (replacement) roll of material 12 to locate into position semi-automatically, when the lower roll 12' falls away.

As shown in Figures 3a to 3d the bungs 18 are shown at rest, separate from the core 17. The inner end of the portion 19 is broadly in vertical alignment with the bight 23c of the arms 23, (see Figure 4a.) When the core 17 is then fitted in the dispenser 10, depending on the relative dimensions, the projection 19 is urged inwardly of the core so flexing the arms 23 until they take up the position shown in Figure 4b. The flat portions 23a, 23b engage the inner surface of the core. Wall 24 acts as a guide to prevent any sideways movement of the projection portion 19 which could either cause breakage of the bung 18 or otherwise affect the ability of projection 19 to engage correctly with the mounting means present within dispenser 10.

In use, at least one bung is inserted into one end of the core for a roll of material until lip 21 abuts against the core edge and cylindrical portion 22 is held against the internal face of the core. The material is then wrapped around the core. Desirably two bungs 18 are used, with one bung 18 being located at each end of the core 17, since this will

double the degree of flexibility available. In one embodiment a first bung 18 as illustrated in Figures 3a and b is inserted at one end of the core and a second bung 18 as illustrated in Figures 3c and d is inserted at the opposite end of the core. When inserted into a dispenser the arms 23 of bung 18 may flex as required, depending upon the degree of movement of projection 19 needed to ensure that the roll of material fits within the internal proportions of the dispenser. The arms 23 also resiliently urge the projection 19 toward the extended position due to their flexibility.

Once the roll has become exhausted of material within the dispenser the core, together with the bungs 18 will fall out of the dispenser. This may be facilitated by the internal configuration of the dispenser or by the core being a 'split' core of the known variety, such that as the last of the roll is pulled from the core the two halves thereof separate, each falling from the dispenser. The bungs 18 can be removed from the core or core halves and re-used by simply washing and inserting them back within a new core with material wound thereon.

CLAIMS

1. A retaining device to hold a roll of dispensable material in a dispenser therefor, the roll comprising a core about which the material is wound, the device comprising an anchor portion shaped for reception in the end portion of the core, and a projection portion for engagement with the roll retaining means of the dispenser, wherein the projection portion is connected to the anchor portion by at least one arm member which is movable to vary the distance the projection portion extends, in use, beyond the end of the core.
2. A device according to Claim 1, wherein the anchor portion and the projection portion are generally cylindrically bodies and the projection portion is located generally axially within the anchor portion and the arm member connects the two portions at a location remote from the dispenser mounting fitting.
3. A device according to Claim 2, wherein the arm member is connected at one end to the anchor portion near the outer end thereof and at the other end near the longitudinal centre of the projection portion.
4. A device according to any preceding Claim, wherein there is a pair of diametrically opposed arms members.

5. A roll of material comprising a core about which the material is wound, the core having at least one retaining device according to any preceding Claim received in an end portion thereof.
6. A roll of material according to Claim 5, wherein the core comprises two separate axially spaced portions, the material being wound about each.
7. A dispenser for material comprising a closable cover and means to retain and allow rotation of a roll of material, the means being adapted to mate with a retaining device of a roll according to Claim 5 or 6.
8. A retaining device substantially as hereinbefore described with reference to the accompanying drawings.
9. A roll of material substantially as hereinbefore described with reference to the accompanying drawings.
10. A dispenser substantially as hereinbefore described with reference to Figures 1 and 2 of the accompanying drawings.



Application No: GB 0104402.3
Claims searched: 1-6,8 & 9

Examiner: Mike Leaning
Date of search: 12 September 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.S): B8M (MB4, MGD, MGF, MHE)

Int CI (Ed.7): A47K (10/16, 10/32, 10/34, 10/36, 10/40); B65H (19/00, 75/08, 75/14)

Other: Online: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
A	GB 2243822 A	(BABCOCK INDUSTRIES INC.) Note the arm members 41 joining projecting portion 44 to the anchor portion/core 5 in figures 3,4,9 & 10.	1,2,4,5
X	GB 1416069	(INTERNATIONAL BUSINESS MACHINES CORP) See retaining means 12 that is connected to the anchor portion 38 by arm member 68/72.	
A	GB 870004	(IGNACE CINGLIO) See figure 5. Provides an alternative solution to the problem addressed wherein the projecting portion is readily adjustable by virtue of its being connected to the anchor portion by screw-threads.	
A	US 5322234	(ROBERT et al.) Illustrative of the state of the art. See especially figure 5. Provides an alternative solution to the problem addressed wherein the projecting portion 17 is readily adjustable by virtue of its being spring-mounted.	

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.

& Member of the same patent family

A Document indicating technological background and/or state of the art.
P Document published on or after the declared priority date but before the filing date of this invention.
E Patent document published on or after, but with priority date earlier than, the filing date of this application.



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Application No: GB 0104402.3
Claims searched: 1-6, 8 & 9

Examiner: Mike Leaning
Date of search: 12 September 2001

Category	Identity of document and relevant passage	Relevant to claims
A	US 4383656 (CAMPBELL) See especially figure 3. Note that the projecting portion 32 is readily adjustable by virtue of its being spring-mounted.	

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| Y Document indicating lack of inventive step if combined with one or more other documents of same category. | P Document published on or after the declared priority date but before the filing date of this invention. |
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